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Changing Patterns of Care for War-Related Post-Traumatic Stress Disorder at Department of Veterans Affairs Medical Centers: The Use of Performance Data to Guide Program Development

Guarantor: Robert Rosenheck, MD*†
Contributor: Alan Fontana, PhD*

This study traces the development of services for war-related post-traumatic stress disorder (PTSD) provided at Department of Veterans Affairs (VA) medical centers. During the 1980s, long-stay inpatient programs were the major source of specialized VA treatment for PTSD, and an initial effort at development of specialized outpatient clinics resulted in incomplete implementation. In 1988, a full continuum of inpatient and outpatient services was designed and a national program of performance monitoring and outcome assessment was implemented to standardize program structure, monitor delivery, and evaluate outcomes. A series of multisite outcome studies showed significant but modest improvement in association with specialized outpatient treatment; they also showed that traditional long-term inpatient programs were no more effective and were far more costly than short-term specialized inpatient programs. Since 1995, the VA has shifted the emphasis of care substantially from inpatient to outpatient settings. National monitoring efforts have documented maintenance of specialized PTSD treatment capacity, increased access, improvement on available administrative measures of quality of care, and improved inpatient outcomes. Although there have been major changes in the treatment of mental illness in most health care systems in recent years, change in the treatment of PTSD at VA medical centers is unique in that it has been guided by the results of multisite outcome studies conducted in a "real-world" setting and has been supported by ongoing nationwide performance monitoring.

Changing Patterns of Mental Health Service Delivery

The 1990s have seen unprecedented changes in the delivery of mental health services in this country. Reductions of 30% to 40% in inpatient service use and somewhat smaller reductions in outpatient care have been documented in studies of private mental health systems.[1-4] These patterns of service delivery have also been shown to affect people with severe mental illness as well as people with milder disorders[4] and public mental health systems[5,6,8-11] as well as private insurance plans.[1-8]

Because these changes were originally inspired by a desire to reduce costs, there has been substantial concern that the drive for economic efficiency will have adverse effects on clinical effectiveness, especially for patients with severe psychiatric problems and greater service needs.[7,8] Research studies have been initiated to determine the impact of these dramatic changes on patient welfare in several health care systems. Some preliminary reports suggest significant adverse effects,[7,9] whereas others do not.[10,11]

In parallel with these nationwide changes, the delivery of mental health services in the Department of Veterans Affairs (VA) has also undergone a major transformation in recent years. In fiscal year 1995, VA headquarters initiated an important reorganization that spurred a national effort to shift the focus of care from the hospital to the community.[5,12] The central mechanism for bringing about this change was to shift the foundational unit of care from hospitals focused on institutional goals to networks that would be focused on the care of geographically defined populations. Specific administrative performance standards issued by VA headquarters encouraged reductions in bed days of care. As a result, between 1995 and 1997, the number of occupied mental health beds decreased by 44%, from 13,571 to 7,584; the number of veterans receiving outpatient mental health treatment increased by 9.1%, from 545,004 to 594,720; and the intensity of their service use increased by 15%, from an average of 15.1 contacts per year to 17.3 contacts per year.

Treatment of Post-Traumatic Stress Disorder in VA Facilities

Treatment of post-traumatic stress disorder (PTSD) related to military service is a major priority for the Department of Veterans Affairs. PTSD is the only psychiatric illness with a clear etiologic relationship to military service, and numerous clinical and epidemiologic studies have demonstrated that exposure to high levels of war-zone stress is associated with severe, disabling, and long-lasting impairment for many veterans. The National Vietnam Veterans Readjustment Study (NVVRS), for example, estimated that in 1988, 15 years after the last U.S. soldier left Vietnam, 15% of those who served in the Vietnam theater (472,000 veterans) met the criteria for active current PTSD.[13] During fiscal year 1997, the VA treated more than 90,000 veterans for PTSD, 9,700 of whom (11%) received inpatient care.

The VA's national system of care for PTSD developed in several stages. First, during the decade after the end of the Vietnam war, from 1975 to 1985, about 20 VA medical centers, acting independently of one another, developed a series of specialized inpatient PTSD programs that became centers for the development of expertise in treating war-related PTSD—a disorder with which few clinicians had any training or experience.

Second, during the early 1990s, a national network of outpatient programs was established with special, nationally managed Congressional funds. A full continuum of PTSD treatment,

*Northeast Program Evaluation Center, VAMC, West Haven, CT, and Evaluation Division, National Center for Posttraumatic Stress Disorder, Department of Psychiatry, Yale University, New Haven, CT.
†Department of Public Health, Yale University, New Haven, CT.
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including inpatient, residential rehabilitation, day treatment, and outpatient treatment programs, was defined and implemented at selected sites. This second phase was unique in that a national program of performance monitoring and outcome assessment was implemented to standardize program structure, monitor delivery, evaluate outcomes, and guide program design at the national level.

The challenge of the mid-1990s has been to continue the development of this network and to maximize its efficiency while using national evaluation findings to preserve, improve, and document its continued clinical effectiveness.

Unlike most health care systems, in which managed care initiatives have been implemented without systematic performance assessment or outcomes monitoring, the delivery of specialized PTSD treatment in VA facilities has been systematically monitored, and outcomes associated with many of its key components have been evaluated. Thus, the development of the VA's system of PTSD care is unique in that it has been guided by standardized performance assessment, a series of focused outcome studies, and, more recently, a nationwide outcomes monitoring effort focused on high-intensity and high-cost treatment programs. Together, these efforts have provided a rich array of data that has guided the development of the VA's PTSD service system and that has been used to preserve and document its quality and clinical effectiveness.

This paper describes the development of treatment for PTSD at VA facilities and the role of the VA's Northeast Program Evaluation Center, the Evaluation Division of the VA's National Center for PTSD, in monitoring, evaluating, and shaping that development. In describing the use of evaluation data to guide system change, we wish to highlight both the strengths and limitations of this approach and, above all else, its complexities in actual practice. Performance assessment systems addressing the informational needs of large health care systems often must trade scientific rigor for programmatic relevance, and their effective use therefore depends on a combination of thoughtful interpretation and balanced judgment linked with sound leadership and openness to stakeholder concerns. The VA is a large, complex health care system with multiple goals and many constituencies. The need for "real-time, real-word" data to guide program development requires the modification of traditional research designs to meet novel demands and the judicious application of evaluation findings to the delivery of clinical care.

Developing Awareness of PTSD

VA treatment of PTSD began and was initially shaped by the intensely emotional atmosphere surrounding the Vietnam conflict. Public controversy over the Vietnam War and its effect on U.S. soldiers started before, and continued long after, the last U.S. combat troops left Vietnam in March 1973. The first Congressional hearings on the special readjustment difficulties of Vietnam veterans were held in 1970, and Robert Lifton's account of their special psychological problems was published in 1973.[14] Public and professional concern about the aftereffects of military service in Vietnam did not become widespread, however, until the end of the 1970s. At that time, (1) a group of veterans filed a highly publicized class-action lawsuit against the manufacturers of dioxin (Agent Orange) (January 1979); (2) the Vet Center program was established as a readjustment counseling alternative to standard VA mental health treatment (November 1979) (which was widely viewed as insensitive to the specific needs of Vietnam veterans with PTSD); (3) PTSD was defined and included in the American Psychiatric Association's official *Diagnostic and Statistical Manual of Mental Disorders;* and (4) the national Vietnam Veterans Memorial was dedicated (November 11, 1982). The surge of patriotic feeling stimulated by the release of the U.S. hostages held in Iran, in January 1981, triggered an outpouring of sympathy for the plight of Vietnam veterans and recognition of the long-delayed need to "separate the warriors from the war" and welcome them home, at last.[15]

Development of Specialized Inpatient PTSD Units

Institutions are often influenced by the historical moment in which they are conceived.[16] The first specialized VA medical programs for PTSD were inpatient programs developed in the late 1970s[17] and early 1980s, a time of widely experienced national guilt over the Vietnam war and concern over the neglect of Vietnam veterans after their return from Southeast Asia. The national urge to remember the war, to heal its wounds, and to compensate its veterans for the hardships they endured, combined with the dominant psychodynamic clinical philosophy of the time,[18] resulted in a clinical emphasis on in-depth exploration of war traumas and emotional catharsis of feelings of grief and rage. The development of these "first-generation" programs was thus grounded in a distinctive historical and professional ethos in which Americans were coming to terms with the Vietnam War and at a time when high-quality mental health care was viewed as entailing intensive psychological exploration.

The difficulty and importance of this early work cannot be overemphasized. These were times of great confusion and conflict regarding the historical impact of the Vietnam War. Feelings ran high and opinions were ardently held, all the more so because in the absence of scientific data there was no basis for valuing one opinion over another. Veterans were often hostile and distrustful of government services even as they demanded help from the VA. Few VA clinicians had any experience in the treatment of war trauma or in the psychological exploration of horrific military experiences. The specialized inpatient PTSD units (SIPUs) that were developed during the early 1980s provided a unique, protective setting in which clinicians and veterans learned how to explore some of the darkest aspects of human experience. Few would doubt that effective treatment of PTSD begins with a basic understanding of the horrors of war and their potential sequelae. Although many VA medical centers have reorganized their PTSD services in new directions as a result of the research findings and other developments to be reviewed below, they all draw on lessons learned in these pioneering programs.

At a more practical level, many VA hospitals had unused beds that had been left empty by the deinstitutionalization of care for the chronically mentally ill during the 1960s and 1970s. As a result, facilities in which specialized PTSD inpatient units could be located were widely available, especially at former neuropsychiatric hospitals that had provided long-term institutional care for patients with schizophrenia and other psychotic disorders during an earlier era. Most of the new units were, in fact, established at such facilities.

Like other innovative programs, most SIPUs had selective admissions procedures. They typically had long waiting lists, often extending for more than 6 months, and preferentially admitted patients who appeared to be "motivated for change" and who were free of major addictive or psychiatric co-morbidities or criminal justice system involvement.[19] Once admitted, the programs typically focused on cathartic exploration of Vietnam War trauma in "trauma focus groups" in which peers would encourage each other to revisit and relive nightmarish episodes from their military service. Some preferred to avoid medication for fear that the quest for a "magic pill" would detract from a full commitment to exploratory psychotherapy.[18,19]

By the late 1980s, these programs constituted the VA's best known and most widely respected approach to the psychiatric treatment of severe and prolonged PTSD. Although the Vet Centers provided outreach and counseling to hundreds of thousands of Vietnam veterans each year, they also relied on mainstream VA programs, and most notably the SIPUs, for help with the most challenging patients, i.e., patients for whom medication and careful, sustained clinical management was essential. The long-term inpatient programs were so highly valued that one Congressman, in response to reports of extensive preadmission waiting lists, proposed that the VA establish a SIPU at every VA medical center, a policy that would have cost almost $200 million and would have required a 15% increase in VA funding for its mental health budget.

The Health Care Cost Crisis: Reducing Hospital Utilization

At the same time that the nation was beginning to address its debt to Vietnam veterans, another legacy of the 1960s, the exploding cost of health care, was also having a profound effect on the American economy and public policy. By 1982, when the Vietnam Veterans Memorial was dedicated, health care costs accounted for 10.2% of the Gross National Product, a 34% increase from 7.6% when the Vietnam War ended.[20] Several efforts to control the growth of health care spending had already been tried and had failed.[21]

Because the cost of inpatient care was the fastest growing part of the problem, increasing at a rate of 7% per year,[22] vigorous efforts were directed at reducing the use of hospital services. In 1982, in a bold effort to reduce inpatient Medicare expenditures, the Congress adopted a prospective payment system based on diagnosis-related groups that created powerful financial incentives for shortening lengths of stay. A diagnosis-related group-based budgeting system was also implemented by the Veterans Administration in 1984 and resulted in a 36% reduction in psychiatric lengths of stay from 1984 to 1988 and a 16% reduction in the total number of psychiatric beds.[23] A broad review of VA health care conducted by the National Academy of Sciences had previously found an overreliance on inpatient care in the system. This report urged a shift to a more community-based approach.[24] This call to action was reiterated by the Grace Commission and several other widely publicized reviews of the VA's performance during the early 1980s.[25]

A number of new programs marked a change in direction in the VA and a response to the overreliance on inpatient care. In 1987, for example, the Mental Health and Behavioral Sciences Service in the VA Central Office was able to obtain substantial funding and support from both within the VA and the Congress for a number of demonstration programs that expanded VA community-based mental health services for homeless veterans,[26] generated new residential rehabilitation services,[27] and used intensive case management to reduce institutional dependence among high hospital users.[28] Because these programs differed from much contemporary VA practice, they were carefully evaluated, and after their evaluations were completed their performance continued to be monitored systematically.

Thus, when the goal of establishing a SIPU at every VA medical center was proposed at a Congressional hearing in 1989, which was a reflection of the popularity of these programs among veterans, the thrust to expand inpatient services for PTSD was brought into conflict with the drive to reduce hospital utilization and refocus treatment toward community settings.

A Model of Specialized Outpatient Care for PTSD

Groundwork for an alternative approach to inpatient treatment of PTSD was laid in the late 1980s, when Congress, under Public Law (PL) 100-404, provided VA with $4 million to establish a series of 24 specialized outpatient services for veterans with PTSD. This allocation of funds came in large measure in response to the final report for the NVVRS, which showed that almost a half-million Vietnam theater veterans suffered from PTSD and that for many its effects were significantly disabling.

In fact, PL 100-404 had been preceded by a smaller internal allocation of VA funds to 15 pilot teams. The performance of these teams, however, had not been systematically monitored; perhaps as a result, one of them was never established at all and the others operated at varying levels of partial implementation. A review of the VA's PTSD programs by the VA Office of the Deputy Assistant Secretary for Program Coordination and Evaluation[29] expressed dismay at the flawed implementation of this program and noted that central oversight had been minimal. In fact, until this time, the VA approach to implementing new programs had been to allocate funds, provide a general description of the intended program, and leave implementation to the discretion of the local medical staff.

Recent experience with another innovative Congressionally funded effort, the Homeless Chronically Mentally Ill Veterans program (PL 100-6), however, had demonstrated that national performance evaluation was feasible and could keep innovative programs (1) directing targeted resources toward their intended service missions; (2) serving their intended target populations; (3) delivering appropriate services; and (4) producing desired outcomes.[30,31] Central to the success of this data-based management effort had been the general principle that funds provided by Congress for innovative new programs should stay with those programs. This concept of "fenced funds" was controversial. Although it promoted realization of Congressional and Central Office intent, it invariably placed limits on the autonomy of local medical center leaders and program managers. Although some managers valued the opportunity to participate in well-conceived efforts to address health care problems of national importance, others felt unduly restrained by the restrictions on their use of funds.

Because of the special importance of providing services to Vietnam veterans with PTSD, an evaluation and monitoring effort was mounted to ensure implementation and maintenance

of treatment capacity by the new outpatient PTSD clinical teams (PCTs).[32] As with many evaluation efforts, the implementation of the program required the development of an operational definition of program goals and objectives, which thereby gave it clinical focus.

The principle concept underlying the PTSD clinical teams program was that war-related PTSD was best treated by small, specialized teams of clinicians whose primary clinical focus was this subgroup of veterans. This principle had been proposed by the Chief Medical Director's Special Committee on PTSD, an expert advisory group that recognized, in the early 1980s, that there was a substantial gap between the experience of veterans with PTSD in southeast Asia and the background of most mental health professionals working in the VA. Conventional clinical training provided no background on the military experience in the Vietnam era, the nature of combat in southeast Asia, or the range of potentially traumatic experiences, and it left the ordinary nonveteran clinician ill-prepared to empathize with and understand the extraordinary experiences of Vietnam combat veterans. By developing a cadre of specialists in the treatment of such veterans and the construction of collaborative teams of such specialists, it was expected that relevant experience and expertise could be developed and sustained.

A small team of specialists would also be able to help each other process the horrific experiences about which they would be hearing and use their collective experience to deepen their understanding of their patients' problems. It was widely understood that clinicians often have limited capacity to absorb the realities of war-zone horror and tend to close off their empathy for victims of trauma. Mutual team support, clear leadership, and continuing education would serve to maximize the quality and sensitivity of care delivered by these specialized teams.

The team concept was also designed out of concern for the future treatment of veterans with PTSD. It was postulated that concern for Vietnam veterans would attenuate over the years, although their problems would not, and that their future care would be best served by a program that would be able to pass on the very specific lessons learned through treating PTSD as it is manifested among Vietnam veterans.

PCTs were thus defined as having (1) a specialized focus on the treatment of veterans with war-related PTSD, limiting their workload to the care of such patients, (2) distinct clinical leadership in the form of a specified PCT director; (3) adjoining office space to confirm their team identity; (4) joint clinical conferences and educational activities; (5) special responsibility for treating new patients coming into the system or who had been underserved previously; and (6) responsibility for providing educational and consultative services to the other medical center professionals. A national evaluation system was established to track adherence to these operating principles.

Evaluating Outcomes and Monitoring Service Delivery

Although these objectives were well defined, the PCT program design did not specify preferred clinical modalities because research at that time had defined few treatments with efficacy in the treatment of chronic war-related PTSD. To better describe the population and existing patterns of service use, an outcomes evaluation effort was implemented with six of the original teams, each of which was associated with one or more VA experts in the treatment of PTSD. This study used state-of-the-art assessment methods to follow the progress of 455 veterans with war-related PTSD during their first year of treatment.[33] A subgroup was followed for an additional year to evaluate the clinical assumption that improvement is often delayed.

The study demonstrated that PCT treatment was associated with significant clinical improvement in almost all domains—symptoms, substance abuse, violent behavior, social relationships, and satisfaction with treatment—but that the magnitude of this improvement was relatively modest. Contrary to much expert opinion, almost all improvement occurred within the first 4 months of treatment, with no overall additional improvement during the subsequent 20 months.[34] This pattern of stabilization, rather than major sustained change, was quite similar to that often observed among patients with chronic psychiatric illnesses such as schizophrenia or bipolar disorder. Most patients had been suffering with PTSD for more than a decade and, in retrospect, it was not surprising that most improvement represented recovery to a baseline level that reflected considerable distress and functional impairment.

These data were used to examine the relationship of improvement to a wide range of patient characteristics and the association of improvement with various treatment practices reflecting a wide range of psychotherapies and pharmacotherapies. No significant relationship was observed between any specific treatment elements and positive clinical outcomes. Unexpectedly, veterans with substance abuse problems seemed to do better than others because, in many cases, their substance use could be effectively addressed, resulting in reduced severity of PTSD symptoms. The most common type of treatment involved general psychotherapeutic support addressing current adjustment problems, exploration of war-zone trauma, and pharmacotherapy for specific psychiatric problems when indicated.[35] Although these findings were somewhat disappointing, they were not inconsistent with the small number of other outcome studies of war-related PTSD.

A special analysis of treatment intensity found that outcomes were no better for teams that provided highly intensive individual treatment (e.g., on a weekly basis) than for teams that provided less frequent treatment in groups.[34] These data thus suggested that after a 4-month "movement" phase, gains could be maintained with substantially less intensive treatment, thus freeing resources for the treatment of additional veterans. Although in the absence of data from a controlled experiment this conclusion could not be considered definitive, it was widely discussed and reviewed with PCT staff on national conference calls.

Questions were also raised regarding whether the modest magnitude of clinical improvement was a consequence of perverse incentives created by VA compensation payments. To address this question, outcomes among patients seeking or maintaining VA compensation were compared with those of patients who were not seeking compensation. These analyses revealed that compensation seeking was associated with significantly greater improvement, most likely because income security removes an important source of contemporary stress, especially among truly disabled patients who cannot work.[36]

Program Development

With a national accountability system and fenced funds in place, PCT work loads continued to increase throughout the implementation phase of the program as additional teams were funded by Congress through PL 101-144 and through subsequent legislation. By 1997, 95 clinical teams were in operation, with 8 specializing in the treatment of co-morbid PTSD and substance abuse and 4 specializing in the treatment of PTSD in female veterans. In fiscal year 1997, these teams provided 430,720 units of service to 51,973 veterans[37] (more than half of all veterans receiving services for PTSD at VA medical centers) and averaged 8.3 clinical contacts per veteran per year.

Defining a Full Continuum of VA Treatment for PTSD

Experience with PCTs thus suggested that specialized, intensive, effective treatment of PTSD could be provided as well on an outpatient basis as in inpatient settings. When a second round of Congressional funding was proposed, one that would include funding of long-term SIPUs, an effort was made to design a full continuum of VA care for PTSD that would include three new components: (1) evaluation and brief treatment PTSD units (EBTPUs), specialized inpatient units that would provide brief treatment (30 days or less) and that would be oriented toward improving community adaptation during a brief length of stay; (2) PTSD day hospital programs, which would provide intensive treatment without a specified residential component; and (3) PTSD residential rehabilitation programs (PRRPs), which would focus on functional rehabilitation within inexpensive residences based increasingly on mutual veteran support rather than on 24-hour medical and nursing personnel. Outcome data from the PCT programs and from other recently implemented VA community-based case management and residential care programs suggested that such a continuum would reduce institutional dependence and improve efficiency while providing a balanced focus on community rehabilitation and exploration of past trauma.

Evaluating the Effectiveness and Costs of Traditional SIPUs

Commitment to the traditional SIPU approach, however, was strong, and a multisite outcome study was designed to compare treatment process and outcomes at four of the best-known SIPU programs (n = 333), four of the newly designed EBTPUs (n = 222), and a comparison sample of three nonspecialized general psychiatry inpatient units (n=230).[38]

This study showed few consistently significant differences at the time of admission between veterans treated in the three programs on measures of acute symptom severity or functional disability. Veterans in general psychiatric units had more acute psychiatric symptoms and more active substance use than those in the other two types of program, and veterans in the short-stay specialized programs (EBTPUs) were more symptomatic than those in the SIPUs.

The programs differed substantially on most measures of treatment process. Days on the waiting list before admission and average length of stay were significantly greater in SIPUs (108 days on the waiting list and a 101-day length of stay) than in either EBTPUs (28 and 36 days, respectively) or general psychiatry units (10 and 30 days, respectively).

Patient satisfaction was greatest on the EBTPUs, followed by SIPUs and general psychiatric units. Active involvement in the program and discussion of war-zone issues, as measured by modified versions of standard social climate scales,[39] were greater in both the long-term and short-term specialized programs than in the general psychiatric programs.

Clinical improvement from admission to the time of discharge was greatest for the short-stay specialized PTSD programs (EBTPUs), whereas improvements in PTSD symptoms and alcohol abuse 1 year after discharge were greater for patients treated in both the EBTPUs and general psychiatry programs than for patients treated in SIPUs.

Although statistically significant differences in clinical outcome favored short-term units over the SIPUs and specialized programs (EBTPUs) over general psychiatry programs, these differences were modest in size. Differences in total costs, however, were substantial. Costs averaged $47,091 for SIPU patients, including the initial episode of hospitalization, significantly and substantially greater than the average cost of $25,809 for EBTPU patients and $30,676 for general psychiatry patients.

Although a limitation of this study was that, for practical reasons, it had not been based on an experimental design with random assignment to different programs, there were few differences between patient groups at the time of program entry, and sophisticated statistical techniques were used to adjust for those differences that were identified. The results do not appear to be explainable by selection biases. The study clearly found no evidence to suggest that SIPUs were more effective than alternative programs (in fact, they seemed slightly less effective), and it found strong evidence that they were substantially more costly.

System Change and Outcomes Monitoring

With the reorganization of the VA into 22 Veterans Integrated Service Networks (VISNs) in 1995 and the strong emphasis on reducing reliance on inpatient services, there was concern that negative findings concerning the performance of SIPUs from this study would lead to an overall reduction in PTSD treatment in VA facilities and that VA managers would leap to the conclusion that treatment of PTSD "does not work." Furthermore, in an effort to enhance local decision making, special program funds were "unfenced," although national monitoring of service delivery and outcomes was mandated (Veterans Health Administration directive 95-061) and tracking of expenditures was maintained. In 1996, an important section of the Veterans Eligibility Reform Law (PL 104-262) required the VA to maintain its capacity to provide specialized treatment to veterans disabled by mental illness, including PTSD, which lent further support to this monitoring.

Table I summarizes changes in PTSD service delivery between 1995 and 1997. Although there were few changes in the number of specialized outpatient teams, there were substantial closures of specialized inpatient programs. In addition, outpatient work load increased substantially from 1995 to 1997, with a small

TABLE I

CHANGES IN THE TREATMENT OF PTSD AT VA FACILITIES, 1995–1997

	1995	1997	Change
Program types			
Outpatient			
PTSD clinical teams	84	83	−1.2%
Substance use PTSD teams	9	8	−11.1%
Women's stress disorder teams	4	4	0.0%
PTSD day programs	0	4	
Residential			
Specialized inpatient PTSD unit (SIPU)	26	19	−26.9%
Evaluation and brief treatment PTSD unit (EBTPU)	17	13	−23.5%
PTSD substance abuse unit	4	3	−25.0%
PTSD residential rehabilitation programs (PRRP)	10	11	10.0%
Outpatient work load (specialized programs)			
Unique patients treated	33,015	51,873	57.1%
Visits per patient	9.6	8.3	−13.5%
Inpatient PTSD treatment (all programs, specialized and general)			
Occupied beds (end-of-year census)	965	631	−34.6%
Percent of all VA psychiatry beds used for PTSD	10.7	9.5	−11.2%
Average length of stay on census day (days)	35.1	18.9	−46.2%
Total episodes of inpatient PTSD treatment	14,849	13,423	−9.6%
Average length of stay (days)	27.2	19.0	−30.1%
Unique PTSD inpatients	10,666	9,736	−8.7%
Total annual bed days of care	37.8	26.1	−31.0%
Performance measures after discharge			
Readmissions (% within)			
14 days	5.9	4.8	−18.6%
30 days	10.1	8.7	−13.9%
180 days	37.1	34.8	−6.2%
Readmission days in 6 months after discharge	11.2	7.8	−30.4%
Outpatient visit within 6 months (%)	87.6	91.0	3.9%
Outpatient visit within 30 days (%)	59.5	63.7	7.1%
Number of visits in 6 months	14.5	19.1	31.7%
Continuity (consecutive months with two visits)	1.68	1.83	8.9%
Reside within VISN in which inpatient care was delivered (%)	88.4	88.0	−0.5%
Population coverage (% of veterans with service-connected PTSD who received VA mental health treatment annually)	60.0	61.7	2.8%

reduction in number of visits per patient, consistent with the recommendations from the outpatient outcome study described above.[34]

Although there was a 34% reduction in inpatient beds used for the treatment of PTSD, this change was accompanied by a reduction in length of stay of similar magnitude; as a result, the number of episodes of PTSD inpatient treatment declined by only 9.6% and the number of unique individuals hospitalized declined by only 8.7%.

Other performance measures, similar to those of the Health Employer Data and Information Set used to evaluate managed care organizations,[40] show reduced rates of rehospitalization and hospital days after discharge and improvement on measures of timely access to outpatient care (Table I). Although one goal of a community-based system of care is for people to be treated near their residence, there was virtually no change in the proportion of PTSD patients treated in the VISN in which they reside. A final performance measure, addressing the proportion of veterans treated for service-connected PTSD who used VA mental health services, also showed no change.[41]

These system-wide statistics show that as the VA reduced its overall delivery of inpatient care for PTSD, it maintained overall accessibility of inpatient services and improved its delivery of outpatient services. This stands in striking contrast to developments in the private sector, in which both inpatient and outpatient services have been reduced.[4]

Recent Outcome Results

In 1993, the VA initiated a national system for monitoring outcomes of specialized inpatient PTSD programs. All patients would be systematically evaluated with a brief assessment package at the time of admission and 4 months after discharge.[42] A preliminary comparison of outcomes from patients admitted during the initial phase of the monitoring[43] (March 1993 to February 1996) (n = 4,977) and a more recent sample (March 1996 to April 1997) (n = 2,829) further documents many of the changes in service delivery described above. Highly significant changes ($p < 0.0001$) were observed in patients treated in all three types of specialized inpatient programs (SIPUs, EBTPUs, and PRRPs) across these years, with reductions in average length of stay (from 55 days in the years 1993 to 1996 to 43 days in the years 1996 to 1997), reduced time from first contact with the program to admission (i.e., waiting list time)

(from 116 days in the years 1993 to 1996 to 95 days in the years 1996 to 1997), and a reduced proportion of direct inpatient transfers (from 24% in the years 1993 to 1996 to 17% in the years 1996 to 1997). There were few differences in patient characteristics, although a smaller proportion reported participation in abusive violence in the military (93% in the years 1993 to 1997 vs. 82% in the years 1996 to 1997) and a larger proportion reported recent suicide attempts (3% in the years 1993 to 1997 vs. 10% in the years 1996 to 1997).

After controlling for baseline patient characteristics, improvement 4 months after discharge was significantly greater in 1996 and 1997 than previously for (1) two measures of PTSD symptoms ($p < 0.0001$ for both the short Mississippi Scale for PTSD and a four-item PTSD symptom measure); (2) the Addiction Severity Index composite indices of alcohol and drug problems[44] ($p < 0.0001$ for both indices); (3) a measure of violent behavior derived from the NVVRS[13] ($p < 0.0001$); and (4) employment earnings ($p < 0.05$).

Further analysis of these data are underway to identify specific changes in service delivery that may have resulted in these improved outcomes.

Conclusions

Although the randomized clinical trial has long been, and remains, the gold standard method for research on the efficacy of health care services, such traditional methods are unsuitable for evaluating the quality of care, clinical performance, and outcomes of rapidly evolving health care systems. As demonstrated here, judicious use of a variety of methods, including focused observational outcome studies, standardized intake assessments, and quality monitoring using administrative data, can provide the informational infrastructure to guide and support major system change while maintaining or improving accessibility of services, quality of care, and clinical outcomes at the national level.

After years in which extended inpatient care was the norm for PTSD treatment in VA facilities, a full continuum of inpatient and outpatient services has been developed and a national program of performance monitoring and outcome assessment has been implemented that standardizes program structure, monitors delivery, and evaluates outcomes. In recent years, the VA has shifted the emphasis of care from inpatient to outpatient settings. National monitoring efforts have documented maintenance of specialized PTSD treatment capacity, increased access, improvement on available administrative measures of quality of care, and improved inpatient outcomes.

Although there have been major changes in the treatment of mental illness in most health care systems in recent years, change in the treatment of PTSD at VA medical centers is unique in that it has been guided by the results of multisite outcome studies conducted in a real-world setting and has been supported by ongoing nationwide performance monitoring.

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